

Amendments to the Specification:

On page 6 of the specification immediately after the heading “BRIEF DESCRIPTION OF THE DRAWINGS” please insert the following paragraph:

-- The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with colored drawing(s) will be provided by the Office upon request and payment of the necessary fee. --

On page 18 of the specification under the subheading “2.3.1 Examples of Smoothing” please replace the three paragraphs that begin at line 12 and end on page 19 at line 6 with the following three paragraphs with corrections made therein:

FIG. 5 demonstrates the smoothing operator of the present invention applied to a laser scan reconstruction. The left panel shows that laser scan reconstruction left unwanted, pointed artifacts 502, 503 in the eye 501. Then, the middle panel shows that a superellipsoid 504 around the region of interest to define the region to be smoothed. The right panel shows that, after smoothing, unwanted artifacts are removed from the eye 501. In this case, a smoothing operator constrained to only remove material is applied and the spiky artifacts are removed.

In another example, FIG. 6 demonstrates the smoothing operator applied to a preliminary 3D scan conversion of the Utah teapot. Unwanted artifacts 603 are removed from the region where the spout 601 meets the body 602 of the teapot by first placing a superellipsoid 604 around the region of interest. The left panel shows that scan conversion left errors near the teapot spout 601. In the middle panel, a superellipsoid 604 is placed around the errors. The right panel shows that the errors are smoothed away. A smoothing operator constrained to only add material (move outward) is applied and the crevices are removed.

Finally, an artificial smoothing example is shown in FIG. 7, where a complex structure 701 is completely smoothed away. This example illustrates that changes of topological genus and number of disconnected components are easily handled within a level set framework during smoothing. The superellipsoid 702 defines the portion of the surface to be smoothed. The surface is constrained to move only inwards (smooth by removing material).

On page 20 of the specification, please replace the paragraph that begins on line 7 and ends on line 12 with the following paragraph with corrections noted therein:

FIG. 8 provides an example of embossing. The left panel of FIG. 8 shows three types of single point attractions/repulsions (801, 802, 803) using different ROI primitives and γ values. Point repulsion is obtained by making α negative. Note that Eq. (12) is just one example of many possible point set attraction speed functions. The right panel shows the Utah teapot embossed with 7862 points that have been acquired by scanning an image of the SIGGRAPH 2002 804 logo and warping the points to fit the shape of the teapot.

On page 21 of the specification, please replace the paragraph that begins on line 19 and ends on page 22 at line 10 with the following paragraph with corrections noted therein:

FIG. 10 contains a series of screen shots taken of the level set modeling user interface program of the present invention. The screen shots depict the actions of constructing an example two-headed winged dragon 1050. The first shows the original dragon model 1051 loaded into the system. A cylindrical primitive 1052 is placed around its head and it is cut off. The model 1054 of the head is duplicated and the two heads are positioned relative to each other. Once the user is satisfied with their orientation, they are pasted together and an automatic blending is performed at the intersection seam. The combined double head model 1055 is positioned over the cropped neck of the dragon body. The double head is pasted and blended onto the body. The griffin model 1056 is loaded into the LS modeling system. A primitive 1057 is placed around one of its wings. The portion of the model within the primitive is copied, being stored in a buffer. Several cutting operations are used to trim the wing model (not shown). The double-headed dragon model is loaded, and the wing is positioned, pasted and blended onto it. A mirror copy of the wing model is created. It is also positioned, pasted and blended onto the other side of the double-headed dragon. A loop 1058 is then added onto the dragon's back as if designing a bracelet charm. This is accomplished by positioning, pasting, and blending a scan-converted supertoroid, producing the final model seen in the bottom right.